UNITED STATES PATENT AND TRADEMARK OFFICE

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09/895,466	06/29/2001	Robin Budd	EMC-00-066	6561

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *09 July 2008*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-3,5,6 and 8-16* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3,5,6 and 8-16* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed 7/9/2008 have been fully considered but they are not persuasive. In the Remarks, Applicant argues in substance that Ohran fails to teach "determination of the unavailability of the primary network." As shown in page 17 of Specification, Applicant alleges that the Internet connection 32 as a primary network connecting the two computers 12, 13 were to fail while the two computers were still operating correctly. The detection of a failure of a server or computer is materially different than or not to be considered as a detection of a failure of a primary network.

The Examiner respectfully disagrees. The "unavailability of the primary network" is determined if the datagrams that would normally pass between the two computers would go undelivered [page 17, lines 7-8 of Specification]. In other words, if the datagram is not received by a computer through the primary network, it is considered that the primary network is unavailable. The detection of a failure of a computer connected to the primary network in Ohran results in the undelivery of datagrams via the primary network or the unavailability of the primary network to the computer. Accordingly, Ohran teaches "determination of the unavailability of the primary network."

Thus, the Examiner respectfully maintains the rejections.

2.   Claims 1-3, 5, 6, and 8-16 are presented for examination. Ohran et al and Vinther et al were cited in the last office action.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-3, 5, 6, and 8-10 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ohran et al. [US 5,812,748] in view of Vinther et al. [WO 92/18931].

As for claim 1, Ohran et al teach in a computer system having a plurality of

computers, each connected to a storage system, each of the storage systems in

communication via an alternate path [e.g., connection between server 111 and storage

system 122; communication means 2102 in fig. 6; link between communication means

attachments 2415, 2425, 2435, 2445 in fig. 8], each computer having software capable

of sending and receiving network information between said computers via a primary

network [network 101 in fig. 1; network 2101 in fig. 5; network 2401, 2402, 2403 in fig.

8], a method for providing continuous availability [col. 1, lines 20-30] of the network

information without use of the primary network [col. 9, lines 62-65] between respective

ones of the computers comprising the steps of:

receiving [col. 2, lines 12-24] transmission packets containing said network

information into an internal thread [col. 4, lines 12-19; col. 11, lines 6-14] of the primary

network and placing the transmission packets into a queue determined by the type of

transmission packet;

upon determination [col. 7, lines 24-26; col. 7, lines 44-46] of the unavailability of the primary network and the determination [col. 2, lines 25-29] that the transmission packet is a write packet [col. 13, lines 3-8], copying [col. 7, lines 53-56] the transmission packets into a buffer; and the internal thread writes [col. 8, lines 14-20] the contents of the buffer to the storage system and enables transmission [col. 8, lines 14-20; col. 14, lines 22-27] of the stored write packets via said alternate path, said alternate path being implemented as a virtual network interface process [col. 10, lines 22-24] wherein said stored write packets containing said network information are transmitted in a protocol suitable [e.g., col. 6, lines 33-50] for said alternate path.

However, Ohran et al do not expressly disclose upon filling the buffer to a predetermined point waking the internal thread to process the filled buffer. Vinther et al teach a method for providing continuous availability of the network information without use of the network [e.g., ref. No. 19 in fig. 1] comprising the steps of copying transmission packets into a buffer [page 7, lines 5-14], upon filling the buffer to a predetermined point waking [page 17, lines 28-31] an internal thread to process the filled buffer, and the internal thread writes [page 7, lines 20-23] the contents of the buffer to the storage system. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ohran et al and Vinther et al because they both teach mirroring network transmission packets received, buffered, and finally stored into a storage system and the Vinther et al's teachings of upon filling the buffer to a predetermined point waking an internal thread to

process the filled buffer would increase efficiency in buffering [Vinther et al: page 14, lines 12-18] rather than buffering all data [Ohran et al: col. 7, lines 53-56].

5.　　As for claim 2, Vinther et al teach prior to the internal thread receiving transmission packets, a client thread submitting the transmission packets into a write buffer [page 7, lines 5-8].

6.　　As for claim 3, Vinther et al teach calling, by the client thread, a transport data function, wherein the transmission packets are extracted from the buffer [page 7, lines 8-12].

7.　　As for claim 5, Ohran et al teach configuring the storage system to include a receive volume and a send volume, wherein the contents of the buffer are written to a send volume; copying the contents of the send volume to the receive volume [e.g., col. 3, lines 13-20].

8.　　As for claim 6, Ohran et al teach the receive volume and the send volume are respectively located on first and second logical volumes of the storage system [e.g., fig. 7].

9.　　As for claim 8, Ohran et al teach configuring the storage system to include a send volume [e.g., computer system 2110 in fig. 5], configuring a second storage system to include a receive volume [e.g., computer system 2120 in fig. 5], wherein the second storage system is geographically removed from the storage system; writing [col. 8, lines 14-20] the contents of the buffer to the send volume; and copying [col. 8, lines 14-20] the contents of the send volume to the receive volume.

10.   As for claim 9, Ohran et al teach returning the internal thread to a sleep state

after the contents of the buffer are written to the send volume [col. 4, lines 12-13].

11.   As for claim 10, Vinther et al teach copying the contents of the send volume to

the receive volume occurs upon a command from one of the plurality of computers [col.

13, lines 3-8].

12.   Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Ohran et al. [US 5,812,748] in view of well known in the art.

        As for claims 14 and 15, Ohran et al do not explicitly disclose the internet. It is

well known in the art that the Internet is an example of one of the ubiquitous networks

that would be included as part of the prior art disclosure in order to increase adaptability

to the ubiquitous network.

Claim Rejections - 35 USC § 102

13.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14.   Claims 11-13 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by

Ohran et al. [US 5,812,748].

        As for claim 11, Ohran et al teach in a computer system having a plurality of

applications [e.g., clients 3700 in fig. 9], in communication with a storage system, each

application having a process capable of sending and receiving information [e.g., server

requests in col. 2, lines 1-2] regarding said applications over a primary network [e.g.,

network 101 in fig. 1; network 2101 in fig. 5; network 2401, 2402, 2403 in fig. 8] to and

from the plurality of applications, a method for providing continuous availability [col. 1,

lines 20-30] of the application information comprising the steps of:

recognizing [e.g., "detect a failure of another server's computer" in col. 7, lines

20-29] that the primary network between the applications is unavailable [server requests

(read/write operations) via the network 101 to the failed server is unavailable: col. 2,

lines 12-37];

in response to the unavailability of the network, writing [col. 8, lines 14-20] the

application network information from one of the applications to a first volume;

copying [e.g., col. 8, lines 14-20; col. 12, lines 50-54] the application network

information written to the first volume to a second volume system;

reading [e.g., col. 4, lines 15-19; col. 12, lines 58-61; col. 14, lines 50-54] the

application network information from the second volume; and

enables transmission [col. 14, lines 22-27] of the application network information

via an alternate path [e.g., connection between server 111 and storage system 122;

communication means 2102 in fig. 6; link between communication means attachments

2415, 2425, 2435, 2445 in fig. 8] between said respective applications, said alternate

path being implemented as a virtual network interface process [col. 10, lines 22-24]

wherein said stored write packets containing said network information are transmitted in

a protocol suitable [e.g., col. 6, lines 33-50] for said alternate path.

15.   As for claim 12, Ohran et al teach reading the network information in less than a

predetermined period of time after it is written to the first volume [col. 2, lines 49-60].

16.   As for claim 13, Ohran et al teach the plurality of applications performs clustering

functions [col. 16, lines 15-17].

17.   As for claim 16, Ohran et al teach a second storage system geographically

remote from the storage system, wherein the first volume is on the storage system and

the second volume is on second storage system [figs. 7-9].

Conclusion

18.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ilwoo Park whose telephone number is (571) 272-4155.

The examiner can normally be reached on Monday through Friday from 9:00 AM to 5:30

PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for

the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

/Ilwoo Park/
Primary Examiner, Art Unit 2182
September 29, 2008